

WHAT IS CLAIMED IS:

1. An axial tube assembly for a motor, comprising:

an axial tube adapted to be securely mounted to a casing, with a stator
being adapted to be mounted to the axial tube, the axial tube including at least
5 one first engaging member on an inner periphery thereof; and

a sleeve mounted in the axial tube, with a bearing being adapted to be
mounted in the sleeve, the sleeve including at least one second engaging
member engaged with said at least one first engaging member of the axial
tube;

10 wherein the sleeve is tightly engaged with the axial tube such that the
axial tube and the bearing exert forces to each other to thereby retain the axial
tube and the bearing in place.

2. The axial tube assembly as claimed in claim 1, wherein said at least
one first engaging member of the axial tube includes at least one positioning
15 groove.

3. The axial tube assembly as claimed in claim 2, wherein said at least
one second engaging member of the sleeve includes at least one key.

4. The axial tube assembly as claimed in claim 2, wherein the axial
tube further includes at least one guiding groove defined in the inner
20 periphery thereof and aligned with said at least one positioning groove.

5. The axial tube assembly as claimed in claim 1, wherein the axial tube includes a plurality of longitudinal slits in an upper end thereof, thereby forming a plurality of resilient tabs.

6. The axial tube assembly as claimed in claim 5, wherein each said
5 resilient tab has a hook on an outer side thereof.

7. The axial tube assembly as claimed in claim 5, wherein the sleeve further includes a plurality of positioning blocks respectively received in the slits of the axial tube.

8. The axial tube assembly as claimed in claim 5, wherein at least one
10 of the resilient tabs has a length smaller than the remaining resilient tabs, forming at least one receiving space, the sleeve including at least one hook formed on the outer periphery thereof and engaged in said at least one receiving space.

9. The axial tube assembly as claimed in claim 8, wherein the sleeve
15 further includes a plurality of positioning blocks respectively received in the slits of the axial tube.

10. A motor comprising:

a casing;

an axial tube securely mounted to the casing, the axial tube including

20 at least one first engaging member on an inner periphery thereof;

a stator mounted to the axial tube;

a sleeve mounted in the axial tube, the sleeve including at least one second engaging member engaged with said at least one first engaging member of the axial tube; and

5 a bearing mounted in the sleeve;

the sleeve being tightly engaged with the axial tube such that the axial tube and the bearing exert forces to each other to thereby retain the axial tube and the bearing in place.

11. The motor as claimed in claim 10, wherein the casing includes a
10 hollow tube in which the axial tube is mounted.

12. The motor as claimed in claim 11, wherein the axial tube includes a plurality of engaging blocks on a lower end of an outer periphery thereof, the hollow tube of the casing including a plurality of engaging grooves in a lower end thereof for respectively and securely receiving the engaging blocks
15 of the axial tube, thereby preventing the axial tube from rotating relative to the casing.

13. The motor as claimed in claim 10, wherein the axial tube is integrally formed on the casing as a single member.

14. The motor as claimed in claim 10, further including a rotor having
20 a shaft rotatably received in the bearing.

15. The motor as claimed in claim 14, wherein the rotor includes a hub to which an end of the shaft is securely mounted, the sleeve including an upper end in a position adjacent to the hub, preventing dusts from entering the bearing.

5 16. The motor as claimed in claim 14, wherein the axial tube includes a plurality of protrusions formed on an inner periphery thereof, further including a positioning ring sandwiched between the protrusions of the axial sleeve and a bottom end of the sleeve, with the shaft being rotatably held by the positioning ring.

10 17. The motor as claimed in claim 10, wherein the axial tube includes a plurality of protrusions formed on an inner periphery thereof, further including a supporting member having a portion sandwiched between a bottom end of the sleeve and the protrusions of the axial tube, further including a rotor having a shaft rotatably received in the bearing, the shaft
15 having a distal end resting on another portion of the supporting member.

 18. The motor as claimed in claim 17, wherein the supporting member includes a compartment for receiving an abrasion-resisting plate on which the distal end of the shaft rests.

 19. The motor as claimed in claim 18, further including lubricating oil
20 received in the compartment of the supporting member.

20. The motor as claimed in claim 10, wherein the bearing is one of an oily bearing, self-lubricating bearing, copper bearing, and sintered bearing.